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NEW SPECIES AND TAXONOMIC NOTES ON MEXICAN AND  
CENTRAL AMERICAN MELASTOMATACEAE

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ABSTRACT: Descriptions, diagnostic illustrations, and discussions are presented for four new species of *Miconia*: *M. grayumii* from Costa Rica and Nicaragua; *M. ibarrae* from Mexico; *M. iteophylla* and *M. peltata* from Panamá. A reappraisal of the floral morphology of *Leandra consimilis* necessitates its transfer to *Miconia* and the adoption of a new name, *M. ligulata*. A chromosome number of  $n = 11$  is reported for *Pilocosta oerstedii* subsp. *campanensis* for the first time. To reflect the uniqueness and relationships of subsp. *campanensis* it is elevated to specific status based on a reconsideration of morphological, chromosomal, and ecogeographic attributes.

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INTRODUCTION

Recent field work in Central America has generated a rich reservoir of specimens upon which to base a treatment of the Melastomataceae for Flora Mesoamericana. In the course of studying this material I continue to detect many new taxa, significant range extensions, nomenclatural problems in need of adjustment, and other information that enhances our understanding of previously described taxa. This paper records some of these discoveries and observations to make the names available for use in other regional checklists and floristic treatments of the family.

*Miconia grayumii* Almeda, sp. nov.

(Fig. 1)

TYPE.—COSTA RICA. Heredia: Finca La Selva, Field Station of the Organization for Tropical Studies on the Río Puerto Viejo E of its junction with the Río Sarapiquí, elev. ca. 100

m, 22 Oct. 1982, McDowell 576 (holotype: CAS!; isotype: DUKE).

Frutex vel arbuscula 1–5 m. Ramuli obscure quadrangulati demum teretes sicut petioli foliorum subtus venae primariae inflorescentiaque modice granuloso-furfuracei. Petioli (2–)6–21 mm longi; lamina 5.5–12.7 × 1.2–4.3 cm anguste elliptica apice anguste gradatimque acuminato basi late acuta vel obtusa, 3-plinervata, membranacea et undulato-denticulata vel integra. Inflorescentia 2.5–5 cm longa multiflora; flores 5-meri, pedicellis (ad anthesim) 2–2.5 mm longis, bracteolis 0.5 × 0.25 mm persistentibus. Hypanthium (ad torum) 1 mm longum sparsiuscule caduceque granuloso-furfuraceum; lobis interioribus 0.25 × 0.5 late deltoideis, dentibus exterioribus 0.25–0.5 mm eminentibus. Petala 1.5–2 × 0.5 mm obovato-oblonga intus minute papillosa extus glabra. Stamina isomorphica glabra; filamenta 1–1.5 mm longa; antherarum thecae 0.5–0.75 × 0.25 mm anguste oblongae, poro paulo dorsaliter inclinato; connectivum nec prolongatum nec appendiculatum. Stylus 2.5–3 mm glaber; ovarium 5-loculare et ¾ inferum glabro.

Shrub or small trees 1–5 m tall. Older cauline internodes subquadrate to terete, sparsely to moderately ferruginous scurfy-pulverulent to glabrate. Distal branchlets, petioles, elevated pri-

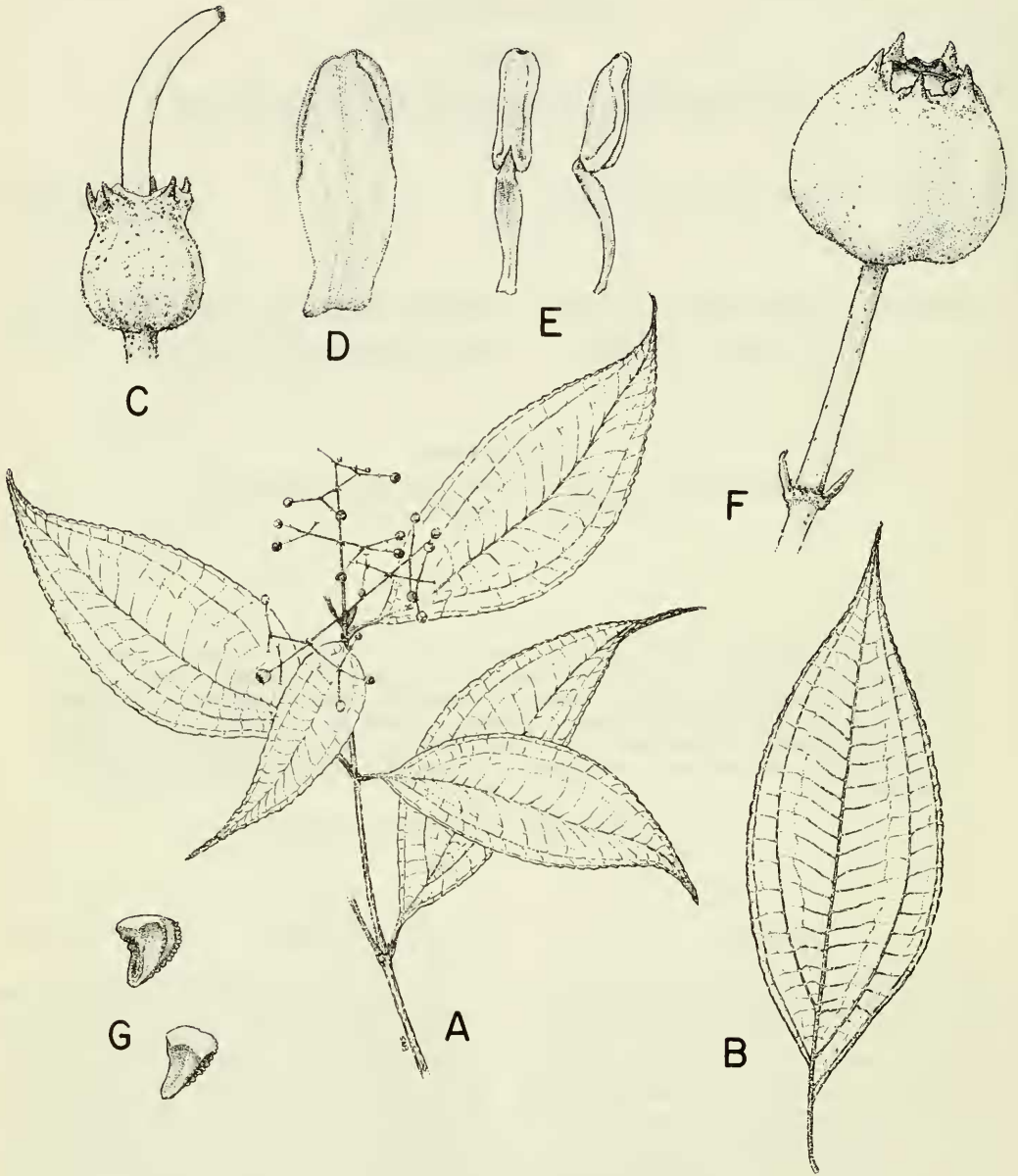


FIGURE 1. *Miconia grayumii* Almeda. A, habit,  $\times$  ca.  $\frac{2}{3}$ ; B, representative leaf (lower surface),  $\times$  1; C, flower (at anthesis) with all petals and stamens removed,  $\times$  15; D, petal (adaxial surface),  $\times$  ca. 22; E, stamens, dorsal view (left) and lateral view (right),  $\times$  30; F, mature berry,  $\times$  ca. 5; G, seeds,  $\times$  ca. 15. (A from *Folsom 8914*; B from *Smith 152*; C–F from the holotype; G from *Hammel 12011*.)

mary leaf veins below, and inflorescences moderately scurfy-pulverulent. Leaves of a pair somewhat unequal in size; petioles (2–)6–21 mm long; blades membranaceous, 5.5–12.7 cm long and 1.2–4.3 cm wide, narrowly elliptic, apex attenuate to gradually acuminate, base broadly

acute to obtuse and typically inaequilateral but not decurrent on the petiole, margin undulate-denticulate to entire, 3-plinerved, the innermost pair of elevated primaries diverging from the median nerve in opposite or irregularly alternate fashion at successive points above the blade base,

the transverse secondaries prominulous and spaced 3–5 mm apart at the widest portion of the blade, glabrous above at maturity, sparingly scurfy-pulverulent and/or obscurely glandular-pulverulent to glabrate below. Inflorescence a paniculiform dichasium 2.5–5 cm long divaricately branched from the base, terminal but sometimes becoming pseudolateral because of axillary bud elongation; bracts of rachis nodes persistent, lance-triangular, 0.5–3 mm long, 0.25 mm wide, glabrous above, sparsely scurfy-pulverulent to glabrate below; bracteoles sessile and persistent, paired and fused into a short inconspicuous nodal collar or elevated interpetiolar ridge, lance-triangular to subulate, 0.5 mm long, 0.25 mm wide, glabrous above and sparingly scurfy-pulverulent to glabrous below, margin entire. Pedicels 2–2.5 mm long, sparingly and deciduously scurfy-pulverulent to glabrate. Hypanthium (at anthesis) globose, 1 mm long to the torus, sparsely and deciduously scurfy-pulverulent. Calyx lobes 5, rounded-deltoid, hyaline and glabrous, 0.25 mm long, ca. 0.5 mm wide basally between sinuses, the margins entire; exterior calyx teeth 5, subulate, 0.25–0.5 mm long, exceeding and obscuring the lobes, essentially glabrous throughout; torus glabrous adaxially. Petals 5, obscurely papillose adaxially, otherwise glabrous, white, obovate-oblong, rounded apically, 1.5–2 mm long, 0.5 mm wide distally. Stamens 10, isomorphic; filaments glabrous, complanate, 1–1.5 mm long; anthers 0.5–0.75 mm long, 0.25 mm wide, yellow, oblong, rounded to truncate at the apex with a retuse to somewhat dorsally inclined terminal pore; connective thickened dorsally but not prolonged or appendaged at the filament insertion. Ovary (at anthesis) ca.  $\frac{3}{4}$  inferior, 5-celled, globose, glabrous apically. Style erect and conspicuously curved distally, glabrous, 2.5–3 mm long; stigma punctiform to truncate. Berry blue-black or purple at maturity, globose, 3–5 mm long and 3–5 mm in diameter. Seeds angulate-pyramidate, 0.5–1 mm long, beige, smooth with obscure but distinct verruculose angles on the convex face.

**PHENOLOGY.**—Flowering and fruiting occur sporadically from February through November.

**DISTRIBUTION.**—Rain forests and stream banks in the Caribbean lowlands of Costa Rica and Nicaragua at 40–180 m.

**ADDITIONAL SPECIMENS EXAMINED.**—COSTA RICA. Heredia: Finca La Selva, OTS Field Station on Río Puerto Viejo,

trail at perimeter of successional plots, 13 Feb. 1981, *Folsom 8914* (CAS); Finca La Selva, OTS Field Station, West Boundary, 800–1,200 m line, 19 Feb. 1981, *Folsom 9041* (CAS); W of San Jose on Río Sarapiquí, across Río Sardinal at edge of Lomas Sardinal, 4 Feb. 1983, *Garwood et al. 1070* (BM); Finca La Selva, Loop Trail, near SW Trail, 15 Jul. 1979, *Grayum 1834* (CAS); Finca La Selva, East Boundary Trail, 2,300 m line, 19 Jul. 1979, *Grayum & Sperry 1854* (CAS); Finca La Selva, forested knoll E of Boundary Trail on way to Q. Arboleda swamp, 14 Mar. 1980, *Hammel 8076* (CAS); Finca La Selva, bank along Río Puerto Viejo, 550 S  $\times$  1,500 E m grid, 23 Jun. 1980, *Hammel 9103* (CAS); Finca La Selva, near Loop Trail, 100 m S, 28 Aug. 1980, *Hammel 9603* (CAS); Finca La Selva, on ridge in plot III, 4 May 1982, *Hammel 12011* (CAS); Finca La Selva, West Boundary, 1,200 m S, 28 May 1982, *Hammel 12576* (CAS); Finca La Selva, El Sura Trail, 1,200 m line, 25 Sep. 1982, *McDowell 199* (CAS); Finca La Selva, around 1,850 m E, 1,950 m S, 1 Sep. 1981, *Smith 152* (CAS). Limón: Cerro Coronel, E of Río Zapote, ca. 1.5 km from Río Colorado, 10°40'N, 83°40'W, 13 Mar. 1987, *Stevens et al. 24795* (CAS). NICARAGUA. Zelaya: Nueva Guinea, Colonia Yolaina, 13 Aug. 1982, *Araquistain 3069* (CAS); Caño Costa Rica, 1.8 km SW of Colonia Naciones Unidas, 11°43'N, 84°18'W, 6–7 Nov. 1977, *Stevens 4971* (CAS).

The first collections of *Miconia grayumii*, made just over a decade ago, were initially referred to *M. brenesii* Standley because of similarities in foliar morphology, indument type, and the divaricately branched dichasia. Critical study of the improved material now available necessitates the recognition of two species based on consistent morphological and ecological differences. All of the perceived differences between *M. grayumii* and *M. brenesii* involve details of the flowers and fruits. The latter has broadly deltoid calyx teeth that do not greatly exceed or obscure the calyx lobes, petals that are smooth on both surfaces, and anthers that are cuneate and broadest distally with flaring dorsally inclined pores. This broad pore and its thick connective that is prolonged for a short distance (0.25 mm) below the thecae give the anthers of *M. brenesii* an unusual dorsally arcuate conformation when dry. Some of the most readily observed differences between *M. grayumii* and *M. brenesii* involve stylar and seed characters. In *M. brenesii* the straight style is terminated by a capitellate stigma and its seeds, although pyramidate like *M. grayumii*, have completely smooth polished angles. There are also pronounced ecogeographic differences between these two species. In Costa Rica, *M. brenesii* is largely confined to a more westerly distribution at higher elevations (900–1,600 m) whereas *M. grayumii* occurs in the eastern lowlands (40–180 m) that extend northward to Nicaragua.

Despite the many vegetative similarities between *M. brenesii* and *M. grayumii*, the latter appears to be closest to *M. ligulata* Almeda (also discussed below). Petal, stamen, and seed morphology are identical in these two species. However, in *M. ligulata* the indument consists of pinoid hairs, the leaves are larger (12–28 × 4–10 cm) and decurrent on the petiole, the torus is puberulent adaxially, the petals are glabrous throughout, and the style is straight.

This species is named for Michael Grayum who first collected this species at the La Selva Field Station in 1979. His subsequent field work in many other areas of Costa Rica has added numerous interesting plants to the flora of the region.

***Miconia ibarrae* Almeda, sp. nov.**

(Fig. 2)

TYPE.—MEXICO. Veracruz: road to Lázaro Cárdenas, 4 km W of Estación de Biología Tropical Los Tuxtlas, 95°04' and 95°09'W, 18°36'N, municipio San Andrés Tuxtla, elev. 400 m, 3 Jun. 1986, *Sinica* 738 (holotype: CAS!; isotype: MEXU).

Arbor parva 4–9 m. Ramuli quadrangulati demum teretes sicut foliorum subtus venae primariae inflorescentia hypanthiaque modice vel sparse stellulato-furfuracei demum glabrati. Petioli 0.8–2.1 cm longi; lamina 5–11.5 × 2.5–4.1 cm elliptica vel elliptico-lanceolata apice acuminata basi acuta vel obtusa, 3(–5)-plinervata, membranacea et undulato-denticulata. Panicula 5–10 cm longa multiflora; flores 5-meri, pedicellis (ad anthesim) 0.5 mm longis, bracteolis 0.25–0.5 × 0.25 mm persistentibus. Hypanthium (ad torum) 2–2.5 mm longum; calyx 0.5 mm longus truncatus vel vix undulatus, dentibus exterioribus ca. 0.25 mm eminentibus. Petala 2.5–3 × 1.5 mm obovato-oblonga, extus et intus dense papillosa. Stamina isomorphica glabra; filamenta 2 mm longa; antherarum thecae 2–2.5 × 0.5 mm oblongae, poro ventraliter inclinato; connectivum nec prolongatum nec appendiculatum. Stylus 3.5–5 mm glaber; ovarium 5–6-loculare omnino inferum apice glabro.

Trees 4–9 m tall. Uppermost branchlets, vegetative buds, and inflorescences sparsely to moderately stellate-furfuraceous, the distal branchlet nodes bearing prominent interpetiolar lines or ridges. Leaves of a pair slightly unequal in size; petioles 0.8–2.1 cm long; blades membranaceous, 5–11.5 cm long and 2.5–4.1 cm wide, elliptic to elliptic-lanceolate, apex acuminate, base acute to obtuse, margin undulate-denticulate, 3(–5)-plinerved, the innermost pair of elevated primaries diverging from the median nerve in opposite or alternate fashion above the blade base, above glabrous at maturity, below essentially glabrous or sparingly and deciduously stellate-furfuraceous on the elevated primary nerves. Inflo-

rescence a terminal multiflowered panicle 5–10 cm long; bracts of the rachis nodes persistent, narrowly lance-triangular, 1–1.5 mm long, 0.25 mm wide at the base, sparingly stellulate-furfuraceous to glabrate; bracteoles sessile and persistent, subulate, 0.25–0.5 mm long, 0.25 mm wide, sparingly stellulate-furfuraceous, margin entire. Pedicels 0.5 mm long but lengthening to 1 mm in fruit, sparingly stellate. Hypanthia (at anthesis) campanulate, 2–2.5 mm long to the torus, sparingly and deciduously stellulate-furfuraceous to glabrous. Calyx tube ca. 0.5 mm long, truncate or obscurely undulate with 5 inconspicuous and early deciduous triangular calyx teeth ca. 0.25 mm long that barely project beyond calyx rim; torus glabrous adaxially. Petals 5, conspicuously papillose on both surfaces, white, obovate-oblong, rounded to irregularly undulate apically, 2.5–3 mm long, 1.5 mm wide distally. Stamens 10, isomorphic; filaments glabrous, complanate, 2 mm long; anthers 2–2.5 mm long, ca. 0.5 mm wide, erect to slightly incurved apically, yellow, linear-oblong, laterally compressed and deeply channeled ventrally between thecae, rounded at the apex with a ventrally inclined terminal pore; connective thickened dorsally but not prolonged or appendaged at the filament insertion. Ovary (at anthesis) completely inferior, 5–6-celled, globose to depressed-conic, the apex fluted and glabrous but becoming rounded in fruit. Style somewhat declinate and incurved distally, glabrous, 3.5–5 mm long; stigma punctiform to truncate. Berry globose, greenish-yellow when plump and fleshy, 4–5 mm long and 5–5.5 mm in diameter. Seeds irregularly pyramidal, 1.5 mm long, beige, smooth and vernicose with a rounded or bluntly angulate convex face.

PHENOLOGY.—Flowering and fruiting specimens have been collected from April through July and June through August, respectively.

DISTRIBUTION.—Rain forests of the municipalities of Catemaco and San Andrés Tuxtla in Veracruz, Mexico at 100–500 m.

ADDITIONAL SPECIMENS EXAMINED.—MEXICO. Veracruz: Municipio Catemaco, 6 km SW of Sontecomapan, 12 May 1972, *Beaman* 5953 (F, MEXU); Estación de Biología Tropical Los Tuxtlas, Cerro Vigía, 21 May 1981, *Gentry & Lott* 32208 (CAS, MEXU, MO, US); Municipio San Andrés Tuxtla, Laguna Escondida, 2 km NE of Estación de Biología Tropical Los Tuxtlas, 22 Jul. 1983, *Ibarra* 754 (CAS); Estación de Biología Tropical Los Tuxtlas, 95°04' and 95°09'W, 18°34' and 18°36'N, Lot 67, 24 Jun. 1984, *Ibarra & Cedillo* 1792 (CAS, TEX), Estación de Biología Tropical Los Tuxtlas, 95°04' and 95°09'W, 18°34' and 18°36'N, Lot 67, 21 Aug. 1984, *Ibarra*

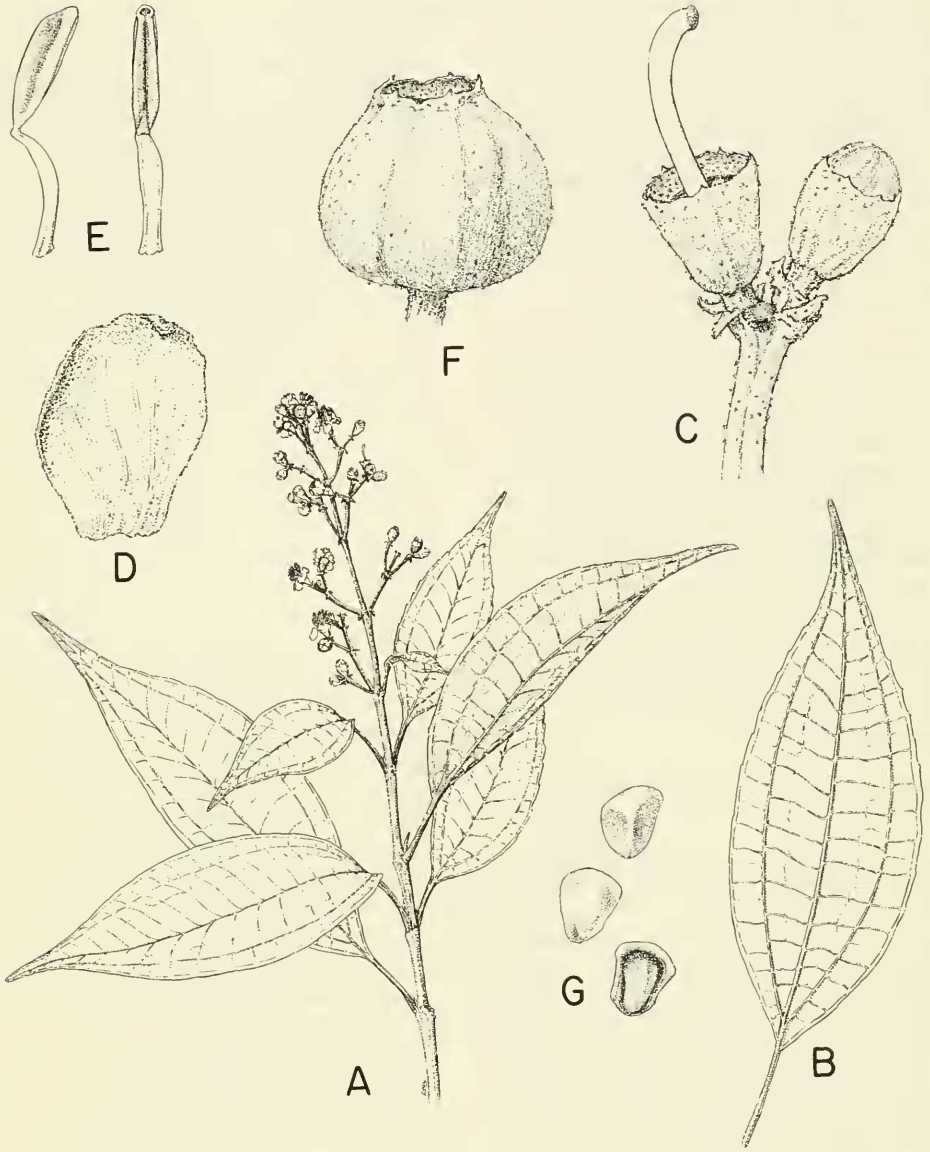


FIGURE 2. *Miconia ibarrae* Almeda. A, habit,  $\times \frac{3}{8}$ ; B, representative leaf (lower surface),  $\times \frac{3}{8}$ ; C, representative flower with petals and stamens removed (left) and floral bud (right),  $\times$  ca. 7; D, petal (adaxial surface),  $\times 9$ ; E, stamens, lateral view (left) and ventral view (right),  $\times 8$ ; F, mature berry,  $\times 6$ ; G, seeds,  $\times$  ca. 6. (A–E from the holotype; F from *Ibarra 754*; G from *Ibarra & Sinica 1931*.)

& *Sinica 1931* (CAS); Laguna Escondida, 2.5 km NE of Estación de Biología Tropical Los Tuxtlas,  $95^{\circ}04'$  and  $95^{\circ}09'W$ ,  $18^{\circ}34'$  and  $18^{\circ}36'N$ , 23 Apr. 1985, *Ibarra et al. 2407* (CAS).

This restricted species is defined by its sparse cover of white stellate-furfuraceous hairs on the lower leaf surfaces, prominent interpetiolar lines

or ridges on distal branchlets, undulate-denticulate leaves, truncate to obscurely undulate calyx, papillose petals, and irregularly pyramidate seeds that are smooth and vernicose on the rounded or bluntly angulate convex face. In leaf shape, calyx development, stamen morphology,

and petal details, *Miconia ibarrae* is most similar to *M. fulvostellata* L. O. Williams, a more widespread species that also occurs in the Los Tuxtlas region (Ibarra and Sinica 1987). In *M. fulvostellata*, the branchlets, petioles, lower leaf surfaces, inflorescences, and hypanthia (at anthesis) are densely covered with a ferruginous stellate indument that conceals the surfaces of these structures. A superficial comparison of these two species may give the impression that *M. fulvostellata* is a densely pubescent extreme of *M. ibarrae*. However, *M. fulvostellata* also differs from the new species by a suite of other diagnostic characters: its style is straight, its stigma is capitate, and its pyramidal seeds have pustulate angles on the convex face and a raphe on the concave side invested with a soft hyaline tissue that collapses irregularly when dry.

This species is named for Guillermo Ibarra M., coauthor of a useful checklist of the plants of the Tropical Biological Station at Los Tuxtlas, Veracruz. It was through his generosity that a fine set of flowering and fruiting material was made available for this study. In the published checklist, *M. ibarrae* is listed as *Miconia* sp. (Ibarra and Sinica 1987).

### *Miconia iteophylla* Almeda, sp. nov.

(Fig. 3)

TYPE.—PANAMÁ. Coclé: along Río San Juan below its junction with Río Tife, elev. 1,200 ft (366 m), 11 Jun. 1978, Hammel 3393 (holotype: CAS; isotype: MO).

Frutex 0.5–1.5 m. Ramuli primum obscure quadrangulati demum teretes sicut laminarum subtus venae primariae petiolique modice granuloso-furfuracei. Petioli 2–11 mm longi; lamina 4.5–9 × 0.6–1.7 cm anguste elliptica apice acuminata basi acuta vel acuminata, 3-plinervata, membranacea et integra. Panicula 2–7 cm longa multiflora; flores 5-meri, pedicellis (ad anthesim) 1–2 mm longis, bracteolis 0.5 × 0.25 mm persistentibus. Hypanthium (ad torum) 1–1.5 mm longum sparse caduceque granuloso-furfuraceum; calycis tubus 0.25 mm longus, lobis subtruncatus vel vix undulatus, dentibus exterioribus subulatis 0.25 mm eminentibus. Petala glabra 2–2.5 × 0.75 mm oblongo-elliptica apice rotundato. Stamina isomorphica glabra; filamenta 1–1.5 mm longa; antherarum thecae 1.25–1.5 × 0.25 mm angustae oblongae, poro paulo dorsaliter inclinato; connectivum nec prolongatum nec appendiculatum. Stylus 3.5 mm glaber; ovarium 5-loculare et 2/3 inferum apicem versus sparse granuloso-puberulum.

Shrubs 0.5–1.5 m tall. Uppermost branchlets subquadrate to terete, moderately covered with a brown scurfy-pulverulent indument, the distal branchlet nodes bearing interpetiolar lines or ridges. Leaves of a pair somewhat unequal in

size; petioles 2–11 mm long; blades membranaceous, 4.5–9 cm long and 0.6–1.7 cm wide, narrowly elliptic, apex acuminate, base acute to acuminate, margin entire, 3-plinerved, the inner pair of elevated primaries diverging from the median nerve in opposite or subopposite fashion, the transverse secondaries prominulous and spaced 1–2(–3) mm apart at the widest portion of the blade, sparingly and deciduously scurfy-pulverulent above when young, deciduously scurfy-pulverulent on the elevated primaries and higher order venation below. Inflorescence a terminal multiflowered panicle 2–7 cm long typically branching 0.6–3 cm above the node initiating the inflorescence, the rachis beset with brown scurfy hairs; bracts of the rachis nodes sessile and persistent, 1.5–3.5 mm long, 0.25–0.5 mm wide, glabrous above, sparsely and deciduously scurfy-pulverulent below; bracteoles sessile and persistent, paired and fused laterally into a short nodal collar or elevated ridge, linear-oblong to narrowly and bluntly triangular, 0.5 mm long, ca. 0.25 mm wide, essentially glabrous. Pedicels 1–2 mm long, moderately to densely scurfy-pulverulent. Hypanthia (at anthesis) campanulate, 1–1.5 mm long to the torus, deciduously scurfy-pulverulent. Calyx tube 0.25 mm long, subtruncate, hyaline and entire, the lobes barely discernible as 5 depressed triangular undulations; exterior calyx teeth 5, subulate, 0.25 mm long, exceeding and obscuring the lobes, glabrous throughout; torus fimbriate-puberulent adaxially. Petals 5, glabrous, white, elliptic-oblong, rounded apically, 2–2.5 mm long, 0.75 mm wide. Stamens 10, isomorphic; filaments glabrous, complanate, 1–1.5 mm long; anthers 1.25–1.5 mm long, 0.25 mm wide, yellow, linear-oblong, truncate, rounded or emarginate at the apex with a somewhat dorsally inclined terminal pore; connective thickened dorsally but not prolonged or appendaged at the filament insertion. Ovary (at anthesis) 2/3 inferior, 5-celled, globose, apex fluted and sparingly glandular puberulent but becoming rounded and glabrous in fruit. Style straight, glabrous, 3.5 mm long; stigma truncate to capitellate. Berry globose, red turning purple-black when mature, 2–4 mm long and 3–4 mm in diameter. Seeds irregularly angulate-pyramidal, 0.5 mm long, rusty brown, smooth, and vernicose with polished angles on the convex face.

PHENOLOGY.—Flowering specimens have been collected in June and July; fruiting collections

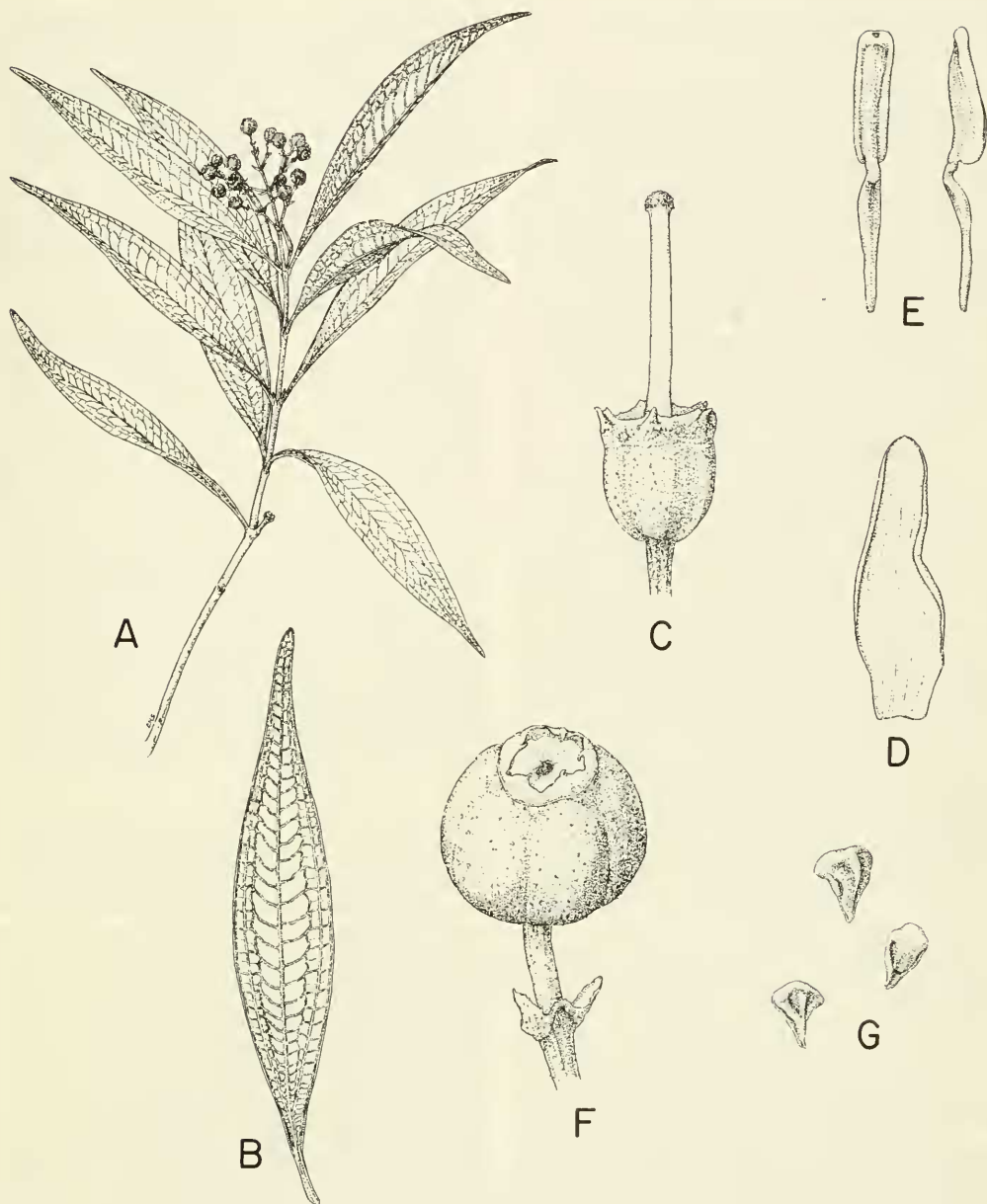


FIGURE 3. *Miconia iteophylla* Almeda. A, habit,  $\times$  ca. 1; B, representative leaf (lower surface),  $\times$  ca. 1; C, flower (at anthesis) with all petals and stamens removed,  $\times$  10; D, petal (adaxial surface),  $\times$  19; E, stamens, dorsal view (left) and lateral view (right),  $\times$  ca. 14; F, mature berry,  $\times$  ca. 7; G, seeds,  $\times$  20. (A–E from Hammel 3330; F from the holotype; G from Antonio 3669.)

have been made in February, June, and December.

**DISTRIBUTION.**—Rain forests on the Caribbean slope of Panamá in Bocas del Toro and Coclé provinces where it typically grows near moving water at 200–450 m.

**ADDITIONAL SPECIMENS EXAMINED.**—PANAMÁ. Bocas del Toro: upper Río San Pedro, 13 Jul. 1979. *Gordon 59Db* (MO). Coclé: trail from Caño Susio to Cerro Tife on the Atlantic slope, 3 Feb. 1980, *Antonio 3669* (CAS); Atlantic slope NW of El Copé, along Río San Juan near fork with Río Tife, 9 Jun. 1978, *Hammel 3330* (CAS); Caribbean side of divide at El Copé, 3 Feb. 1983, *Hamilton & Davidse 2628* (CAS); between

Caño Susio and waterfall at base of Cerro Tife, 13 Dec. 1980, Sytsma et al. 2541 (CAS).

*Miconia iteophylla* is distinguished by its brown scurfy-pulverulent indument, narrow elliptic leaves, linear-oblong petals, and pyramidate seeds with smooth polished angles on the convex face. It is related to a small group of species that includes *M. ligulata* and *M. peltata*, both of which are also treated herein. These three species share a scurfy-pulverulent indument, linear-oblong petals, a deciduously glandular puberulent ovary apex, and a torus that is puberulent adaxially. The brown scurfy indument is superficially similar in all of these taxa. In *M. iteophylla*, however, it consists of branlike scales unlike the pinoid hairs of *M. ligulata* and *M. peltata*. The seeds of *M. iteophylla* and *M. peltata* are identical in shape and sculptural details which suggests that these two species may be more closely related to one another than either is to *M. ligulata*. In general aspect *M. iteophylla* resembles *M. ligulata*, which is readily differentiated by its larger (12–28 × 4–10 cm) 5-plinerved leaf blades that are decurrent on the petiole, and pyramidate seeds with verruculose angles on the convex face.

The epithet for this species is derived from the Greek words *itea*, willow, and *phyllon*, leaf, in reference to the narrow willowlike leaf blades. This species is referred to locally as “ugua” (fide Gordon 59Db, MO) by the Guaymí, the largest Indian group in Panamá (Gordon 1982).

### *Miconia ligulata* Almeda, nom. nov.

*Leandra consimilis* Gleason, Ann. Missouri Bot. Gard. 45:268. 1958.

TYPE.—PANAMÁ. Las Minas, Allen 2702 (holotype: NY). Non *Miconia consimilis* Pilger, Verh. Bot. Ver. Brand. 47:170. 1905. This latter entity is a taxonomic synonym of *Graffenrieda gracilis* (Triana) L. O. Williams (Williams 1963; Wurdack 1970).

In the protologue, Gleason described the petals of this species as oblong-lanceolate. This is understandable in view of the fact that the distal petal margins tend to become involute and superficially appear acute when pressed and dried. Traditionally berry-fruited species in the Miconieae with terminal inflorescences and acute petals have been placed in *Leandra*. The petals of *Leandra consimilis* are actually linear-oblong and rounded to obtuse apically like several described species in *Miconia*. To rectify its taxonomic placement, *Leandra consimilis* is here trans-

ferred to *Miconia*. This requires the adoption of a new name because the epithet *consimilis* is already pre-empted in *Miconia*. When Gleason described this species it was known from only the Panamánian holotype. Wurdack (1978) reported it from Costa Rica south to Venezuela and I have recently recorded that its range extends northward to Nicaragua (Almeda, in press). An expanded description is provided here to reflect the range of variation exhibited by the species throughout its known range.

Shrubs or small trees (1.5–)4–9 m tall. Uppermost branches rounded-quadrate to quadrilobate, the young branchlets, petioles, primary leaf veins below, and inflorescences moderately to densely covered with a brown scurfy indument of pinoid hairs. Leaves of a pair equal to somewhat unequal in size; petioles 0.7–2.5 cm long; blades membranaceous, 12–28 cm long and 4–10 cm wide, elliptic, apex attenuate to long-acuminate, base gradually tapering and decurrent on the petiole, margin entire to undulate, 5-plinerved, the innermost pair of elevated primaries diverging from the median nerve in opposite or alternate fashion, the transverse secondaries prominulous and spaced 3–7 mm apart at the widest portion of the blade, sparsely scurfy-pulverulent to glabrate above, moderately and deciduously scurfy-pulverulent on the secondary and higher order veins below. Inflorescence a terminal multiflowered panicle 4–11.5 cm long typically branching (0.5–)1.5–3.5 cm above the node initiating the inflorescence; bracts of the rachis nodes persistent, 1–5 mm long, 0.25–1 mm wide, glabrous above, moderately covered with scurfy-pulverulent or short-stalked pinoid hairs below; bracteoles sessile and persistent, paired and fused laterally to form a nodal ridge or shallow collar, narrowly triangular, 0.5 mm long, 0.25–0.5 mm wide, glabrous above and sparingly scurfy-pulverulent to glabrate below. Pedicels 0.5–1 mm long with an indument like that of the bracteoles. Hypanthia (at anthesis) campanulate, 1–1.5 mm long to the torus, deciduously scurfy-pulverulent to stellulate-furfuraceous. Calyx tube 0.25 mm long, subtruncate, hyaline, and entire or undulate with 5 rounded-triangular lobes 0.25 mm long; exterior calyx teeth 5, subulate, 0.25 mm long, equaling or exceeding and obscuring the lobes, glabrous throughout; torus sparsely fimbriate-puberulent or glandular puberulent adaxially. Petals 5, glabrous, white,



linear-oblong, obtuse to rounded apically, 2–3.5 mm long, 0.75–1 mm wide. Stamens 10, isomorphic; filaments glabrous, complanate, 1 mm long; anthers 0.75–1.25 mm long, 0.25 mm wide, yellow, linear-oblong, truncate to slightly emarginate at the apex with a somewhat dorsally inclined terminal pore; connective thickened dorsally but not prolonged or appendaged at the filament insertion. Ovary (at anthesis)  $\frac{3}{4}$  to  $\frac{5}{8}$  inferior, 5-celled, globose, apex lobed or fluted and sparsely glandular puberulent but becoming rounded and glabrous in fruit. Style straight, glabrous, 3–4 mm long; stigma truncate but not conspicuously dilated. Berry globose, pink but turning blue-purple when mature, 2–4 mm long and 3–4 mm in diameter. Seeds angular-pyramidal, ca. 0.5 mm long, brown, smooth with verruculose angles on the convex face.

**PHENOLOGY.**—Flowering sporadically from January through October; fruiting specimens have been collected from August through January.

**DISTRIBUTION.**—Widespread in wet evergreen forests on the Caribbean slope of Central America from eastern Nicaragua (Zelaya) south and east through Costa Rica and Panamá to north-western Venezuela (Zulia) from sea level to 1,100 m.

**REPRESENTATIVE SPECIMENS EXAMINED.**—NICARAGUA. Zelaya: SW flank of Cerro Hormiguero, 18 Apr. 1979, *Grijalva 440* (CAS). COSTA RICA. Alajuela: between San Lorenzo and Los Angeles de San Ramon, above Río San Lorenzo, 10°14'N, 84°32'W, 20 Sep. 1978, *Burger & Antonio 11176* (CAS). Heredia: road between Puerto Viejo and La Virgen, near Chilamate, 30 May 1982, *Hammel 12670* (CAS); Finca La Selva, the OTS Field Station on the Río Puerto Viejo just E of its junction with the Río Sarapiquí, 1 Aug. 1980, *Hammel 9403* (CAS). Limón: 2 airline km SSE of Islas Buena Vista in the Río Colorado, 83°40'W, 10°40'N, 13–14 Sep. 1986, *Davidse & Herrera 31064* (CAS); Hacienda Tapezco-Hda. La Suerte, 29 air km W of Tortuguero, 10°30'N, 83°47'W, 22 Aug. 1979, *Davidson & Donahue 8665* (CAS); Cerro Coronel, E of Río Zapote, along and above new road within 1 km of Río Colorado, 10°40'N, 83°40'W, 13–14 Sep. 1986, *Stevens & Montiel 24356* (CAS). PANAMÁ. Coclé: La Mesa above El Valle de Anton, N of Cerro Gaital, 8°37'N, 80°06'W, 26 Jul. 1984, *de Nevers et al. 3524* (CAS); foothills and summit of Cerro Caracoral, near La Mesa and N of El Valle de Anton, 10 Sep. 1981, *Knapp 1092* (CAS); Atlantic slope of the Continental Divide near sawmill above El Copé, 8°40'N, 80°36'W, 13 Feb 1982, *Knapp & Dresler 3506* (CAS); Río Guanache, 9°30'N, 79°39'W, 15 Oct. 1980, *Sytma 1666* (CAS). Comarca de San Blas: El Llano—Cartí Road, Continental Divide, 9°19'N, 78°55'W, 25 Aug. 1984, *de Nevers 3760* (CAS). Darién: Cerro Pirre valley between Pirre and next most southerly peak, 10–20 Jul. 1977, *Folsom 4429* (CAS). Panamá: top of Cerro Campana, 8 Sep. 1982, *D'Arcy 15092* (CAS); Pipeline road, N of Gamboa, 9°10'N, 79°45'W,

4 Aug. 1984, *de Nevers & Hews 3635* (CAS). VENEZUELA. Zulia: Caño Helena, Sierra Perijá, *Delascio & Benkowski 3197* (US.)

*Miconia ligulata* belongs to the group of three species discussed above under *M. iteophylla*. Among its close allies it is unique in having wide leaf blades (4–10 cm) that are gradually tapered at the base and decurrent on the petiole. The verruculose angles on the convex seed face constitute another distinctive but less conspicuous feature of *M. ligulata*. The new name for this species is derived from *ligula*, Latin for little tongue or strap, in reference to the elongate strap-like petals.

### *Miconia peltata* Almeda, sp. nov.

(Fig. 4)

**TYPE.**—PANAMÁ. Panamá: near Cerro Jefe, along road towards Alto Pacora, forested slopes ca. 850 m, ca. 9°15'N, 79°30'W, 27 Dec. 1985, *McPherson 7882* (holotype: CAS; isotype: MO).

Frutex vel arbor parva 3–6 m. Ramuli primum paulo compressi demum teretes sicut petioli foliorum subtus venae primariae inflorescentiaque pilis pinoideis ca. 0.25 mm longis plus minusve caducis dense induti. Petioli 1.3–5 cm longi; lamina peltata 6.7–14.5 × 3.3–8.3 cm ovata vel elliptico-ovata apice acuminata basi rotundata vel subcordata, 5–7-nervata, subcoriacea et undulato-denticulata vel subintegra. Inflorescentia 3–4 cm longa multiflora, ramis oppositis divaricatis; flores 5-meri, pedicellis (ad anthesim) 1 mm longum, pilis plerumque breviuscule stipitato-stellatis vel stellulato-pinoideis praeditum. Calycis tubus 0.25 mm longus, lobis ca. 0.25 mm altis late triangularibus, dentibus exterioribus triangularibus 0.25 mm eminentibus. Petala glabra 2.5 × 0.5 mm oblonga-elliptica apice rotundato vel rotundato-obtusum. Stamina isomorphica glabra; filamenta 1 mm longa; antherarum thecae 0.75–1 × 0.25 mm anguste oblongae, poro paulo dorsaliter inclinato; connectivum nec prolongatum nec appendiculatum. Stylus 1.5 mm glaber; ovarium 5-loculare et  $\frac{2}{3}$  inferum apice sparsiuscule glanduloso-puberulo.

Shrubs or small trees 3–6 m tall. Uppermost branchlets compressed and two-sided but becoming rounded with age. Distal branchlets, petioles, primary leaf veins below, and inflorescences densely and somewhat deciduously covered with a rusty brown indument of pinoid hairs. Leaves of a pair somewhat unequal in size, peltate with the petiole attached 5–8 mm from the basal edge, petioles 1.3–5 cm long; blades subcoriaceous, 6.7–14.5 cm long and 3.3–8.3 cm wide, ovate to elliptic-ovate, apex acuminate, base broadly rounded to subcordate, margin inconspicuously undulate-denticulate to subentire, 5–7-nerved abaxially, the transverse secondaries prominulous and 2–3 mm apart at the widest

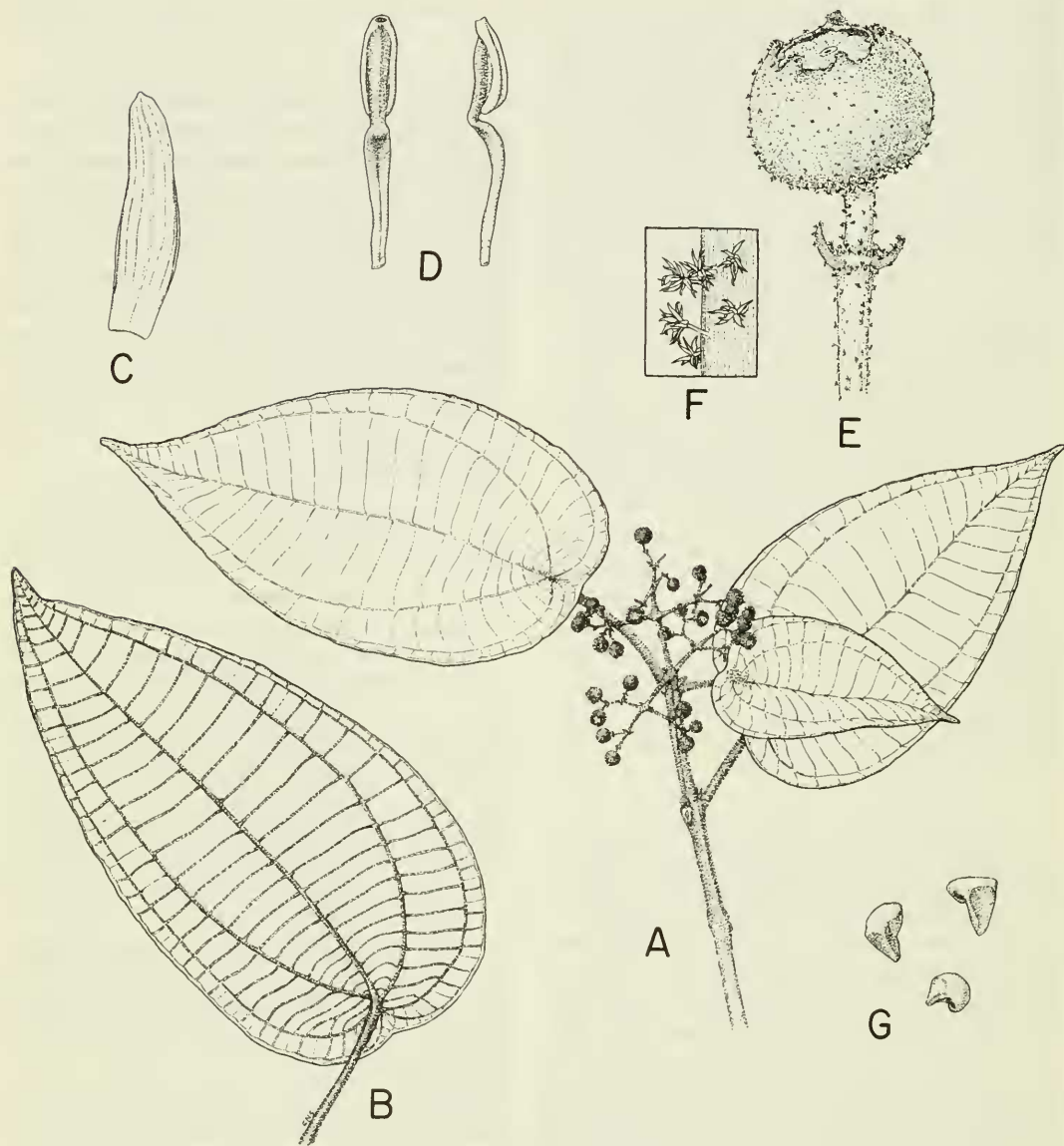


FIGURE 4. *Miconia peltata* Almeda. A, habit,  $\times$  ca.  $\frac{2}{3}$ ; B, representative leaf (lower surface),  $\times$  ca.  $\frac{2}{3}$ ; C, petal (adaxial surface),  $\times 12$ ; D, stamens, dorsal view (left) and lateral view (right),  $\times$  ca. 17; E, mature berry and bracteoles,  $\times 6$ ; F, enlargement of pinoid hairs on fruiting pedicel,  $\times$  ca. 60; G, seeds,  $\times 16$ . (A, B, E, F from *Tyson 3440*; C, D, G from the holotype.)

portion of the blade, glabrous above, the secondaries and higher order veins below sparingly beset with spreading pinoid hairs and an inconspicuous appressed glandular puberulence. Inflorescence a multiflowered paniculiform dichasium 3–4 cm long divaricately branched from the base; bracts of the rachis nodes sessile and

persistent, 1.5–4 mm long, 0.5 mm wide, sparsely beset with pinoid hairs; bracteoles sessile and persistent, subulate, 0.25–0.5 mm long, mostly less than 0.25 mm wide, essentially glabrous throughout. Pedicels 1 mm long. Hypanthia (at anthesis) campanulate to subglobose, 1.5 mm long to the torus, moderately to sparsely covered

TABLE 1. Comparison of chromosome numbers, pollen size, and ecogeographic ranges in *Pilocosta*.

	Haploid number	Pollen diameter	Ecogeographic range
<i>P. campanensis</i>	n = 11	16.5–18.8 $\mu\text{m}$	Central Panamá at 300–1,000 m
<i>P. erythrophylla</i>	n = 7, 14	14.1–16.5 $\mu\text{m}$	Central Costa Rica at 1,480–2,000 m
<i>P. nana</i>	n = 33	25.5–30.6 $\mu\text{m}$	Costa Rica through central Panamá to Colombia (Magdalena) and Ecuador (Pichincha) at 450–1,800 m
<i>P. oerstedii</i>	n = 18	17.6–21.2 $\mu\text{m}$	Central Costa Rica to western Panamá at 900–2,000 m

with stipitate-stellate or short pinoid hairs. Calyx tube 0.25 mm long, subtruncate, hyaline and entire, with 5 triangular lobes ca. 0.25 mm long; exterior calyx teeth 5, bluntly triangular, 0.25 mm long, glabrous throughout; torus inconspicuously fimbriate puberulent adaxially. Petals 5, glabrous, reddish-pink, oblong-elliptic, rounded to obtuse apically, 2.5 mm long, 0.5 mm wide. Stamens 10, isomorphic; filaments glabrous, complanate, 1 mm long; anthers 0.75–1 mm long, 0.25 mm wide, pale yellow, oblong, rounded to subtruncate at the apex with a somewhat dorsally inclined terminal pore; connective thickened dorsally but not prolonged or appendaged at the filament insertion. Ovary (at anthesis)  $\frac{2}{3}$  inferior, 5-celled, globose, apex fluted and sparingly glandular puberulent but rounded and glabrous in fruit. Style straight, glabrous, 1.5 mm long; stigma truncate. Berry globose, purple when mature, 2–2.5 mm long and 3–4 mm in diameter. Seeds irregularly angulate-pyramidate, 0.5 mm long, brown, smooth with polished angles on the convex face.

**PHENOLOGY.**—Flowering and fruiting specimens have been collected in October, December, and February.

**DISTRIBUTION.**—Endemic to Cerro Jefe in central Panamá at 850–1,000 m.

**ADDITIONAL SPECIMENS EXAMINED.**—PANAMÁ, Panamá: Cerro Jefe, 7 Oct. 1986, *Aranda & Valdespino 185* (CAS, MO, PMA); E slope of Cerro Jefe, 8 Feb. 1966, *Tyson 3440* (MO—2 sheets).

*Miconia peltata* also belongs to the group of three species discussed above under *M. iteophylla*. Because of its ovate to elliptic-ovate peltate leaves it is recognizable even in sterile condition. In addition to its unusual leaves, *M. peltata* differs from closely allied species in having reddish-pink petals and an inflorescence that is divaricately branched from the base. The epithet *peltata* is derived from the Greek word, *pelte*,

small shield. This refers to the attachment of the petioles to the lower foliar surface away from the margin of the blade.

***Pilocosta campanensis* (Almeda & Whiffin) Almeda, stat. nov.**

*Pilocosta oerstedii* (Triana) Almeda & Whiffin subsp. *campanensis* Almeda & Whiffin, Syst. Bot. 5(3):306. 1980 [1981].

**TYPE.**—PANAMÁ, Panamá: Cerro Campana, 10 Dec. 1967, *Lewis et al. 3069* (holotype: MO!; isotypes: COL, DUKE!, F!, K!, NY!, UC!).

When Trevor Whiffin and I described this as a subspecies of *Pilocosta oerstedii* we based our decision on similarities in habit and androecial details (Almeda and Whiffin 1981). We also entertained the possibility of describing it as a subspecies of *P. nana* because of similarities in the kind and distribution of hypanthial pubescence. At the time it was the only taxon in the genus for which we had no chromosome information. Based on information then available we recognized two subspecies under *P. oerstedii* because of their non-overlapping geographic distribution and elevational displacement. A recent study of chromosome numbers in neotropical Melastomataceae (Almeda and Chuang, in prep.) reveals that this taxon has a haploid number of  $n = 11$  (count based on field collected buds of *Almeda et al. 5880*, CAS). Based on morphological, cytological, and ecogeographic data, it is clear that *Pilocosta oerstedii* subsp. *campanensis* has all the attributes that characterize species in this genus (Table 1). I therefore elevate it to species status. An alternative disposition would be to make it a subspecies of *P. nana*. This, however, would make no sense in view of their pronounced morphological and cytological differences and the fact that I have found individuals of these two taxa growing next to one another near La Mesa in Coclé Province, Panamá.

A chromosome number of  $n = 11$  in *P. campanensis* reconfirms our previous assertion regarding the complex cytological evolution within this small natural genus. It also sheds new light on the relationship of *P. nana* and provides some clues on the evolutionary polarity of character states judged to be of taxonomic value in *Pilocosta*. With  $n = 33$ , *P. nana* appears to be a hexaploid derivative of *P. campanensis*. The polyploid gain in *P. nana* has evidently been accompanied by the derivation of an herbaceous habit and subisomorphic androecium from the woody habit and dimorphic androecium of *P. campanensis*.

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